

IN THE CLAIMS:

Claims 1, 2, 6-8, 12, 13, and 17-22 are presented for examination. This listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Previously Presented) An antenna comprising:

a ground conductor having a ground potential;

a single feeding point whose one end is formed by a part of the ground conductor; and

a plurality of transmission lines to which RF power supplied to the feeding point is input, for radiating electromagnetic waves of a plurality of frequencies into space,

wherein the plurality of transmission lines include a specific transmission line that consists of a single element without being separated by space to radiate electromagnetic waves of the plurality of frequencies into space commonly to the plurality of frequencies,

wherein the number of the plurality of transmission lines is equal to or more than four,

wherein impedance matching is performed at the feeding point with respect to the plurality of frequencies, and

wherein when the plurality of frequencies are composed of n frequencies of first, second, third and fourth to n-th frequencies, where n is a positive integer of two or more, the total length of the plurality of transmission lines is shorter than the sum of a quarter wavelength of an electromagnetic wave of the first frequency and half wavelengths of electromagnetic waves of the second, third and fourth to n-th frequencies, the second, third and fourth to n-th frequencies being higher than the first frequency.

2. (Original) The antenna according to claim 1,

wherein the ground conductor, the feeding point and the plurality of transmission lines are formed of an integrated metal plate.

3-5. (Canceled)

6. (Original) The antenna according to claim 1,

wherein the ground conductor is located on one side of one of the plurality of transmission lines.

7. (Previously Presented) An antenna comprising:

a ground conductor having a ground potential;

a single feeding point whose one end is formed by a part of the ground conductor; and

a plurality of transmission lines to which RF power supplied to the feeding point is input, for radiating electromagnetic waves of a plurality of frequencies into space,

wherein the plurality of transmission lines include a specific transmission line that consists of a single element without being separated by space to radiate electromagnetic waves of the plurality of frequencies into space commonly to the plurality of frequencies,

wherein the number of the plurality of transmission lines is equal to or more than four,

wherein, when the plurality of frequencies are composed of two frequencies of first and second frequencies, the plurality of transmission lines include a first transmission line whose one end is connected to the feeding point and whose other end is connected to a first branching point, and a second transmission line connected to the first branching point,

wherein respective lengths of the plurality of transmission lines are set so that impedance matching is performed at the feeding point with respect to the plurality of frequencies, and

wherein the total length of the plurality of transmission lines is shorter than the sum of a quarter wavelength of an electromagnetic wave of the first frequency and a half wavelength of an electromagnetic wave of the second frequency, the second frequency being higher than the first frequency.

8. (Original) The antenna according to claim 7, wherein the ground conductor, the feeding point and the plurality of transmission lines are formed of an integrated metal plate.

9-11. (Canceled)

12. (Original) The antenna according to claim 7, wherein the ground conductor is located on one side or one of the plurality of transmission lines.
13. (Original) The antenna according to claim 7, further comprising a transmission line for impedance adjustment connected to at least one of the feeding point and the branching point.
- 14-16. (Canceled)
17. (Previously Presented) A portable wireless terminal comprising an antenna incorporated therein, the antenna comprising:
 - a ground conductor having a ground potential;
 - a single feeding point whose one end is formed by a part of the ground conductor; and
 - a plurality of transmission lines to which RF power supplied to the feeding point is input, for radiating electromagnetic waves of a plurality of frequencies into space, wherein the plurality of transmission lines include a specific transmission line that consists of a single element without being separated by space to radiate electromagnetic waves of the plurality of frequencies into space commonly to the plurality of frequencies, wherein the number of the plurality of transmission lines is equal to or more than four,
 - wherein, when the plurality of frequencies are composed of two frequencies of first and second frequencies, the plurality of transmission lines include a first transmission line whose one end is connected to the feeding point and whose other end is connected to a first branching point, and a second transmission line connected to the first branching point,
 - wherein respective lengths of the plurality of transmission lines are set so that impedance matching is performed at the feeding point with respect to the plurality of frequencies, and
 - wherein the total length of the plurality of transmission lines is shorter than the sum of a quarter wavelength of an electromagnetic wave of the first frequency and a half

wavelength of an electromagnetic wave of the second frequency, the second frequency being higher than the first frequency.

18. (Previously Presented) An antenna comprising:

a ground conductor having a ground potential;

a single feeding point whose one end is formed by a part of the ground conductor; and

a plurality of transmission lines to which RF power supplied to the feeding point is input, for radiating electromagnetic waves of a plurality of frequencies into space,

wherein the plurality of transmission lines include a specific transmission line that consists of a single element without being separated by space to radiate electromagnetic waves of the plurality of frequencies into space commonly to the plurality of frequencies,

wherein the number of the plurality of transmission lines is equal to or more than four,

wherein, when the plurality of frequencies are composed of n frequencies of first, second, third and fourth to n-th frequencies, where n is a positive integer of three or more, the plurality of transmission lines include a first transmission line whose one end is connected to the feeding point and whose other end is connected to a first branching point, a second transmission line connected between the first branching point and a second branching point, and a third transmission line connected to the second branching point,

wherein respective lengths of the plurality of transmission lines are set so that impedance matching is performed at the feeding point with respect to the plurality of frequencies, and

wherein the total length of the plurality of transmission lines is shorter than the sum of a quarter wavelength of an electromagnetic wave of the first frequency and each of half wavelengths of electromagnetic waves of the second, third and fourth to n-th frequencies, the second, third and fourth to n-th frequencies being higher than the first frequency.

19. (Previously Presented) The antenna according to claim 18, wherein the ground conductor, the feeding point and the plurality of transmission lines are formed of an integrated metal plate.
20. (Previously Presented) The antenna according to claim 18, wherein the ground conductor is located on one side of one of the plurality of transmission lines.
21. (Previously Presented) The antenna according to claim 18, further comprising a transmission line for impedance adjustment connected to at least one of the feeding point and the branching point.
22. (Previously Presented) A portable wireless terminal comprising an antenna incorporated therein, the antenna comprising:
 - a ground conductor having a ground potential;
 - a single feeding point whose one end is formed by a part of the ground conductor; and
 - a plurality of transmission lines to which RF power supplied to the feeding point is input, for radiating electromagnetic waves of a plurality of frequencies into space, wherein the plurality of transmission lines include a specific transmission line that consists of a single element without being separated by space to radiate electromagnetic waves of the plurality of frequencies into space commonly to the plurality of frequencies, wherein the number of the plurality of transmission lines is equal to or more than four,
 - wherein, when the plurality of frequencies are composed of n frequencies of first, second, third and fourth to n-th frequencies, where n is a positive integer of three or more, the plurality of transmission lines include a first transmission line whose one end is connected to the feeding point and whose other end is connected to a first branching point, a second transmission line connected between the first branching point and a second branching point, and a third transmission line connected to the second branching point,

wherein respective lengths of the plurality of transmission lines are set so that impedance matching is performed at the feeding point with respect to the plurality of frequencies, and

wherein the total length of the plurality of transmission lines is shorter than the sum of a quarter wavelength of an electromagnetic wave of the first frequency and half wavelengths of electromagnetic waves of the second, third and fourth to n-th frequencies, the second, third and fourth to n-th frequencies being higher than the first frequency.